How to Extract from Image Services in ArcGIS Pro

This tutorial will show you how to extract a localized area from the LiDAR Image Services located at: https://lidar.geodata.md.gov/imap/rest/services, using ArcGIS Pro.
First we will need to connect to the MD iMAP Maryland LiDAR Topography Server, for more information please follow this link to learn How to Access Maryland LiDAR Image Services.

There are multiple methods for extracting/exporting data from the LiDAR Image Services. Three methods we are going to show you in this tutorial include extracting by the data frame extent, extraction using selected features, and extracting by mask (Spatial Analyst).

Extract by Data Frame Extent

Extract by Selected Features

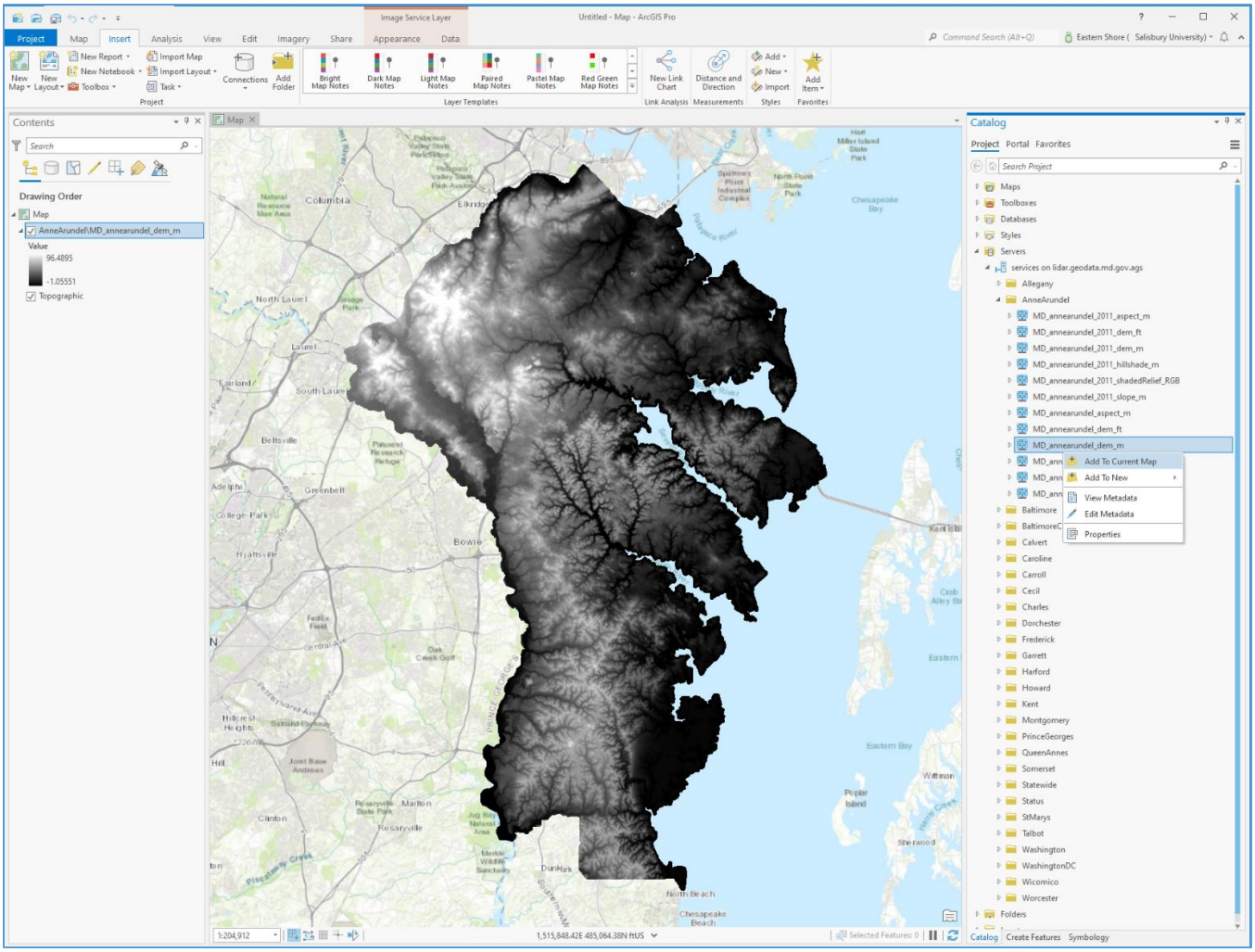
Extract by Mask (Spatial Analyst)

Extract by Data Frame Extent

1. Open an existing project, or start a new map template, in ArcGIS Pro.

2. Add the desired Image Service to your map.
   For more information on accessing Maryland LiDAR image services, please read How to Access Maryland LiDAR Image Services.

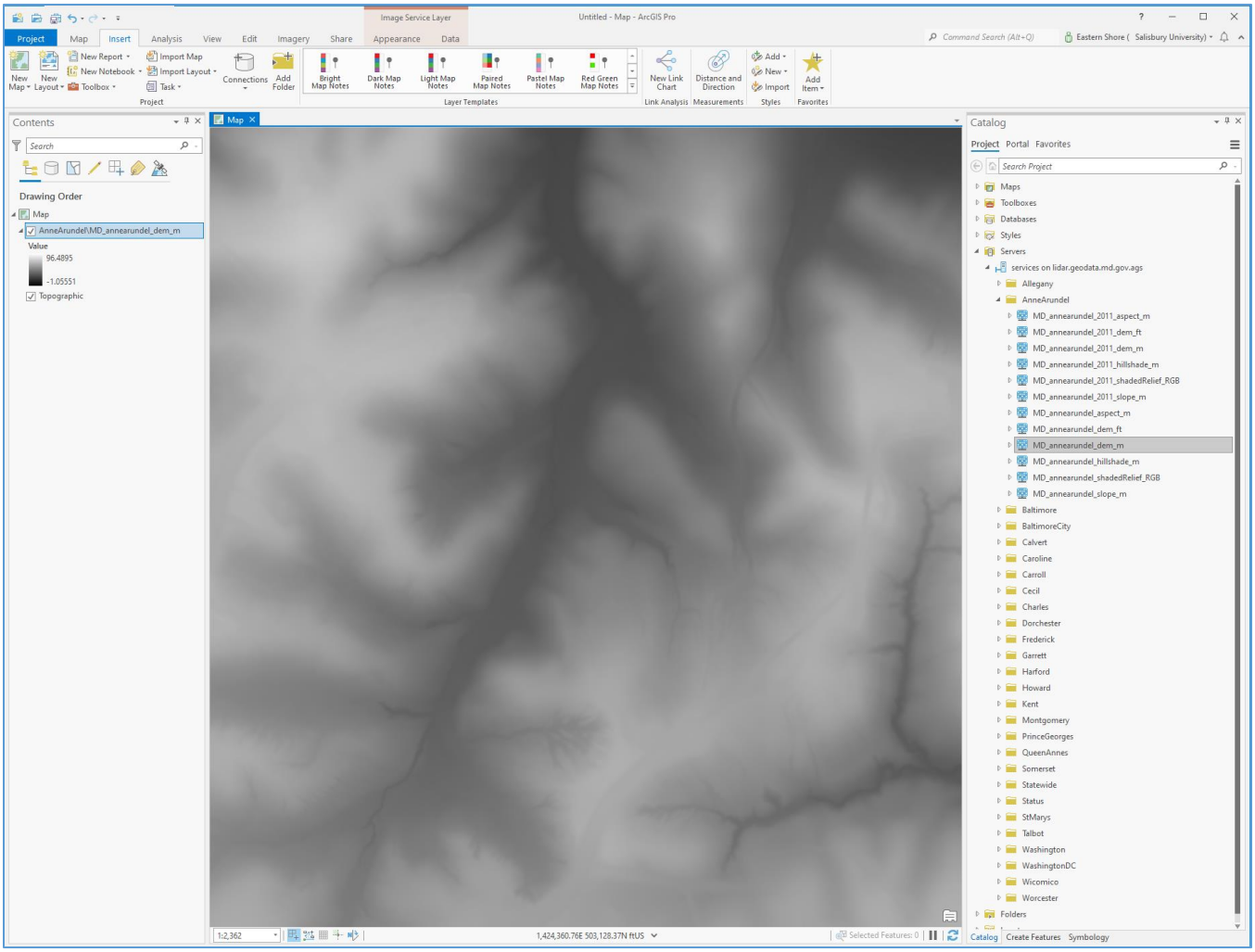
   Example: Anne Arundel DEM in Meters



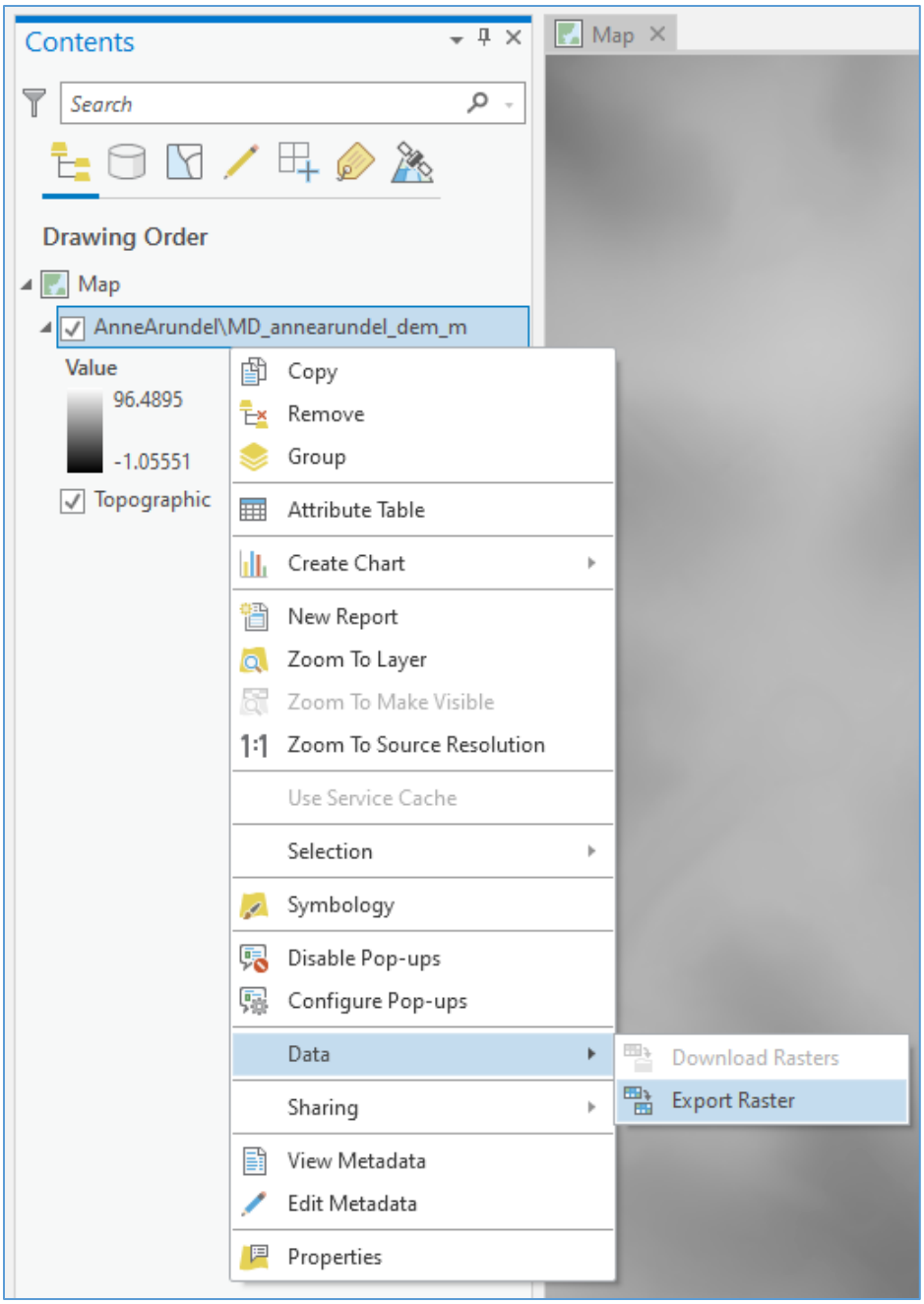
3. Zoom to your area of interest.

Note: This export method uses a clipping geometry as specified by the current map frame extent. The image server defines an export limitation of 4,100 rows and 15,000 columns. Users should be safe to export at scales of 1:3000 or larger.

For larger areas of interest, download a pre-defined countywide DEM from the [MD iMAP LiDAR Download page](#).

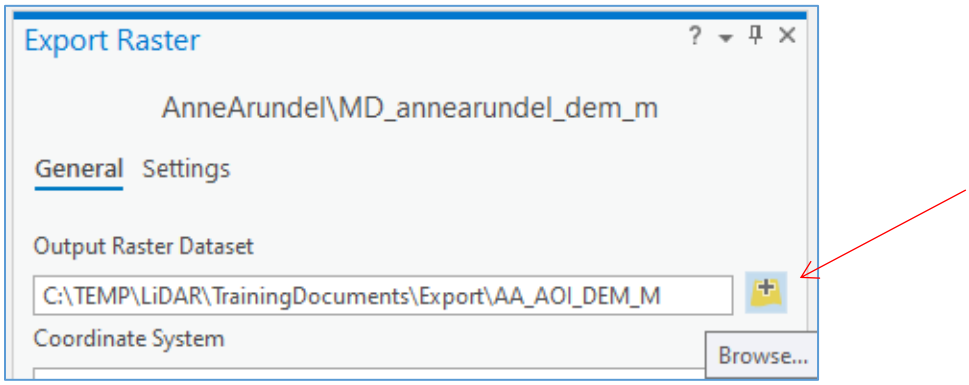


4. Right click the image service layer in your table of contents. Select Data >> Export Raster:



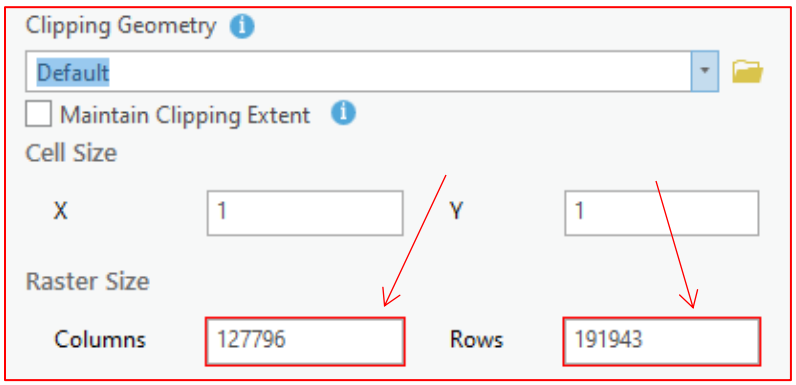
5. Click Browse  to navigate to your preferred output workspace and provide a name for the output raster

   Note: If selecting an output file type of [GRID], your output file name must not exceed 13 characters and cannot start with a number.

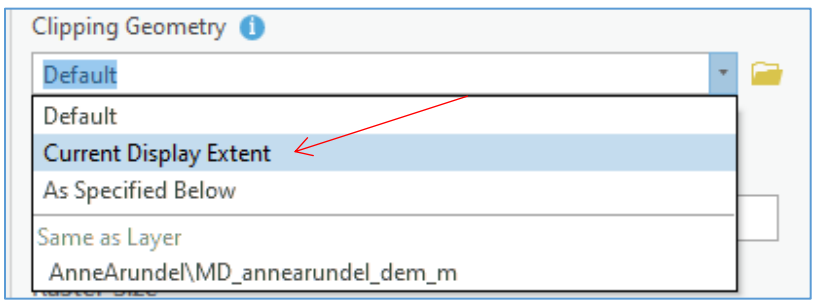


6. The default clipping geometry will specify the 4 corners of the bounding box for the raster object.

   Note: The default raster size is highlighted in red, indicating the extent exceeds our export limitation of 4100x15000



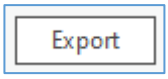
   set the clipping geometry to Current Display Extent



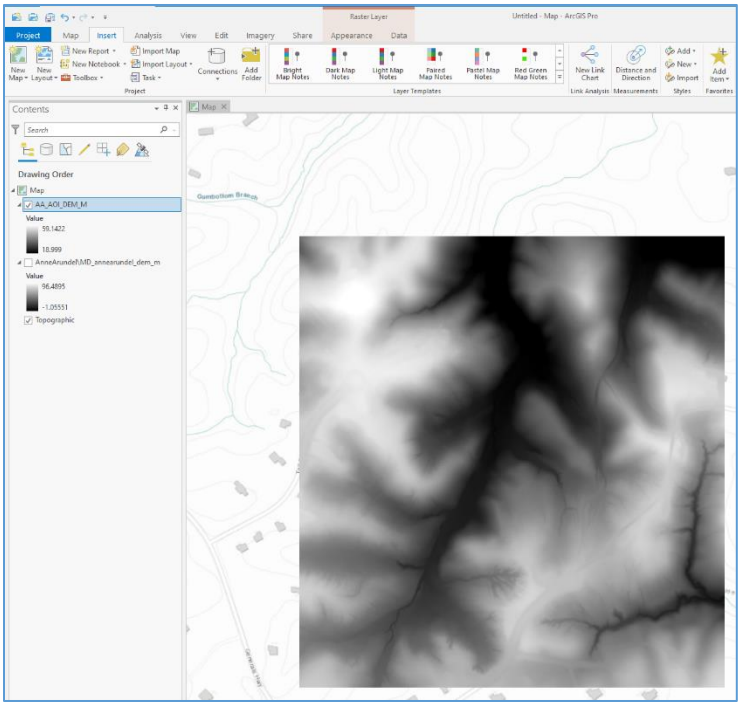
7. Leave the Coordinate System and Cell Size parameters as default (the export window will automatically populate the coordinate system and cell size of the export to match that of the original raster dataset).

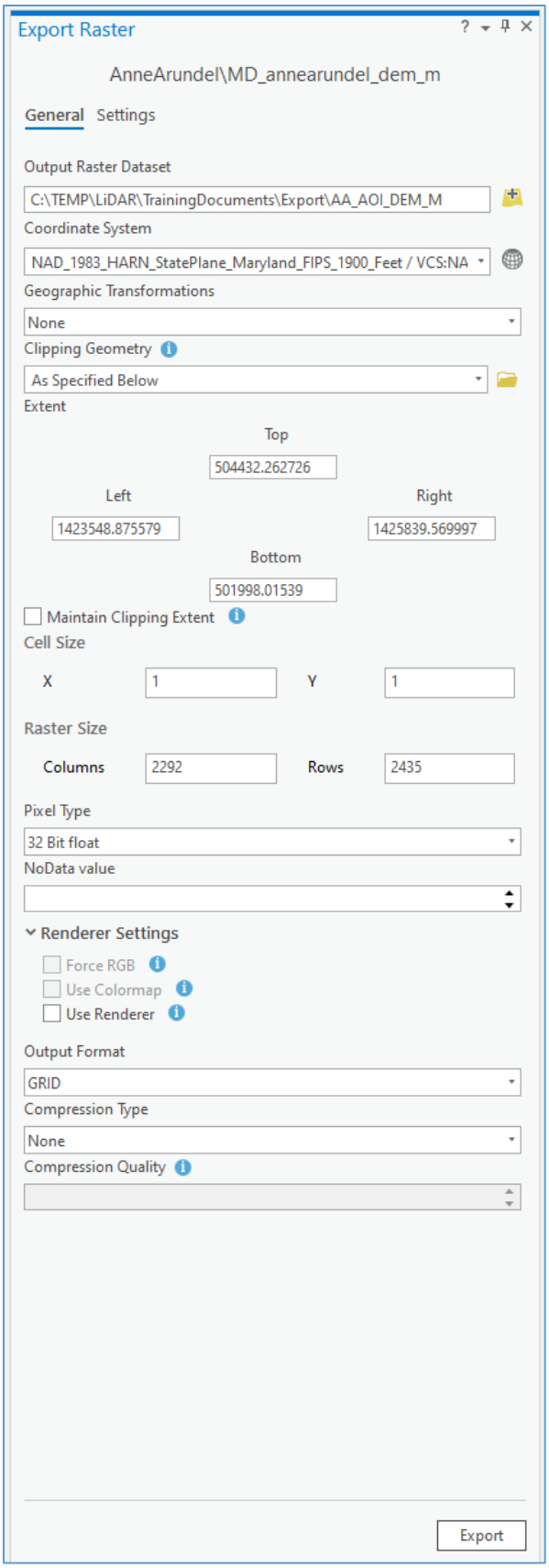
   Select output format >> if continuing to work in ArcGIS Pro, GRID format (default) is recommended.

   The remaining export raster parameters may be left as the default setting.

   Click 

   to run the tool.



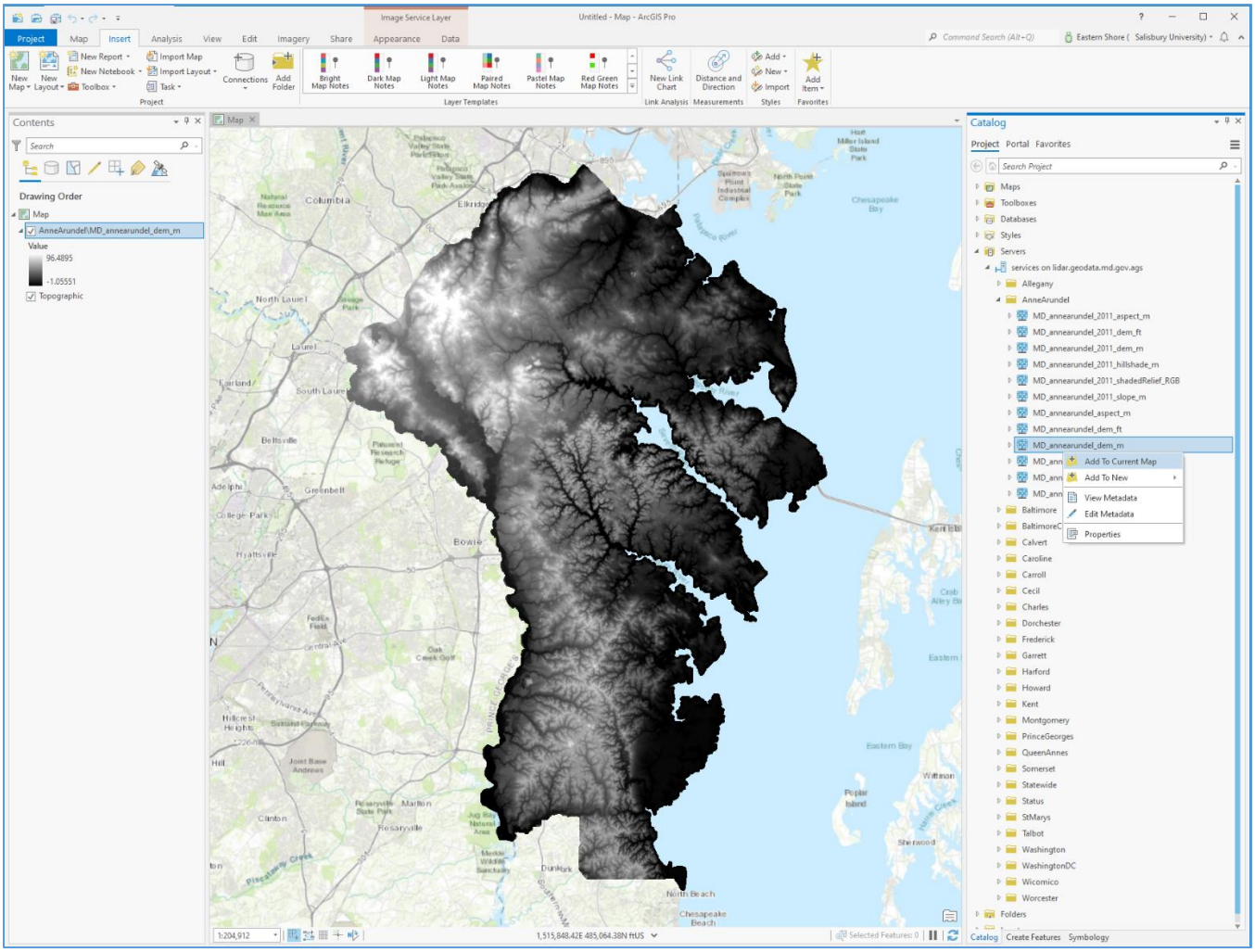


Extract by Selected Features

1. Open an existing project, or start a new map template, in ArcGIS Pro.

2. Add the desired Image Service to your map.
   For more information on accessing Maryland LiDAR image services, please read How to Access Maryland LiDAR Image Services.

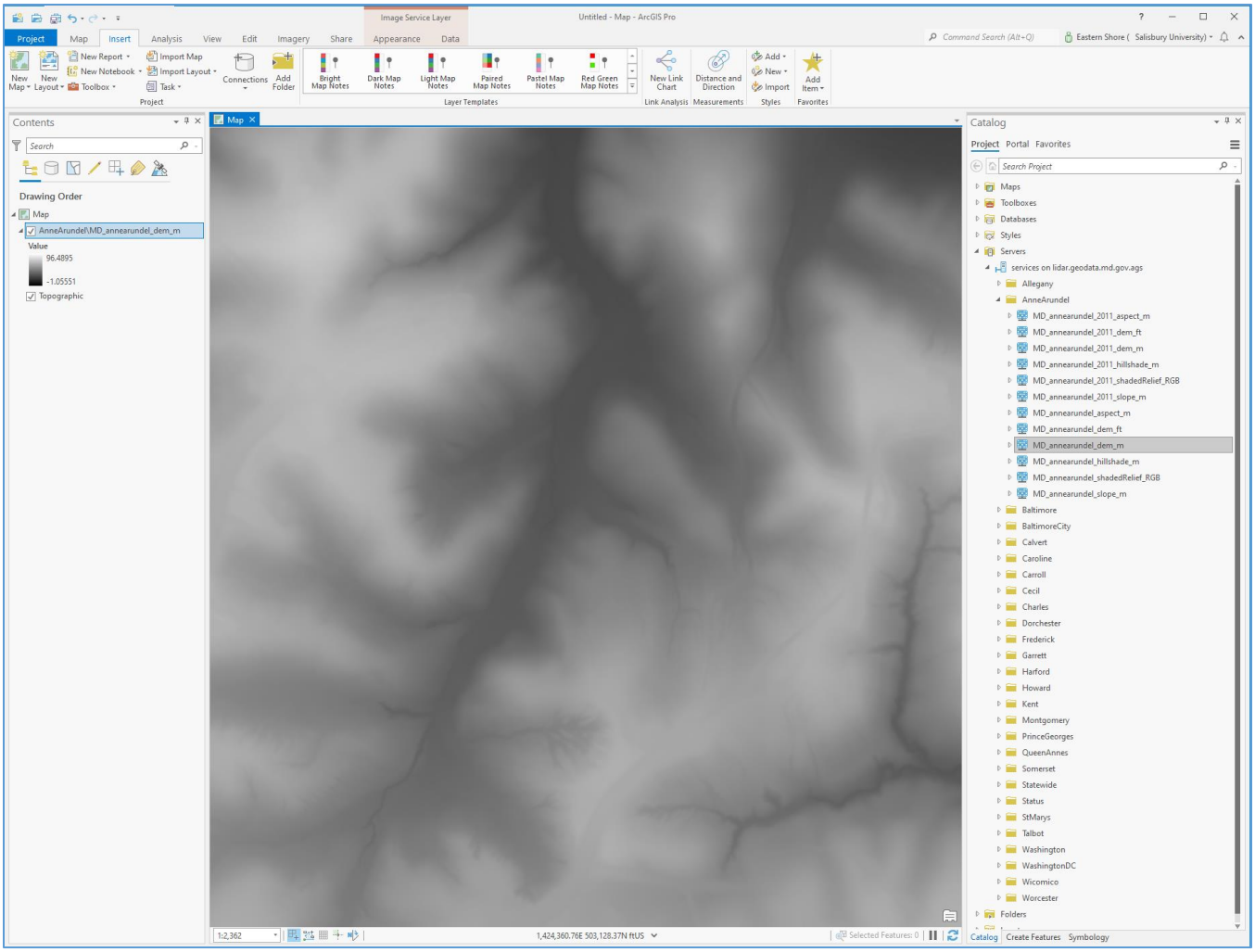
   Example: Anne Arundel DEM in Meters



3. Zoom to your area of interest.

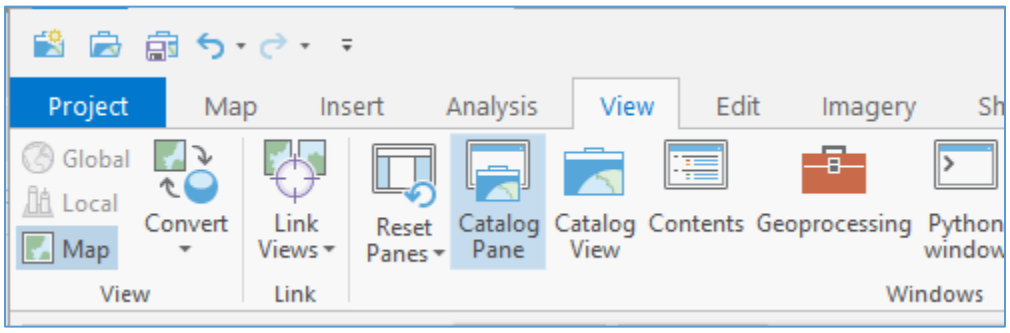
   Note: This export method uses a clipping geometry as specified by the current map frame extent. The image server defines an export limitation of 4,100 rows and 15,000 columns. Users should be safe to export at scales of 1:3000 or larger.

   For larger areas of interest, download a pre-defined countywide DEM from the [MD iMAP LiDAR Download page](#).

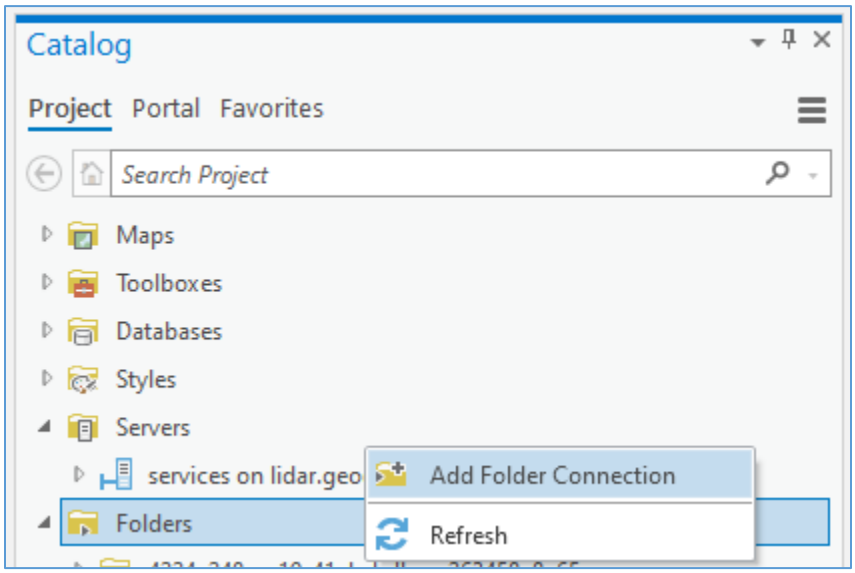


4. If you already have a feature class containing your area of interest and do not need to create your selected feature to extract by, skip to step 16

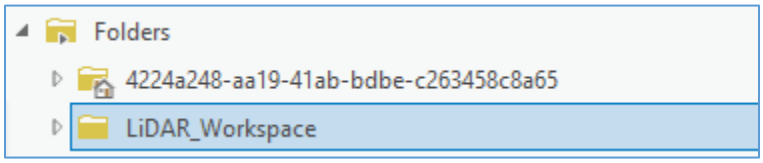
5. Select View tab on the menu bar and open Catalog Pane:



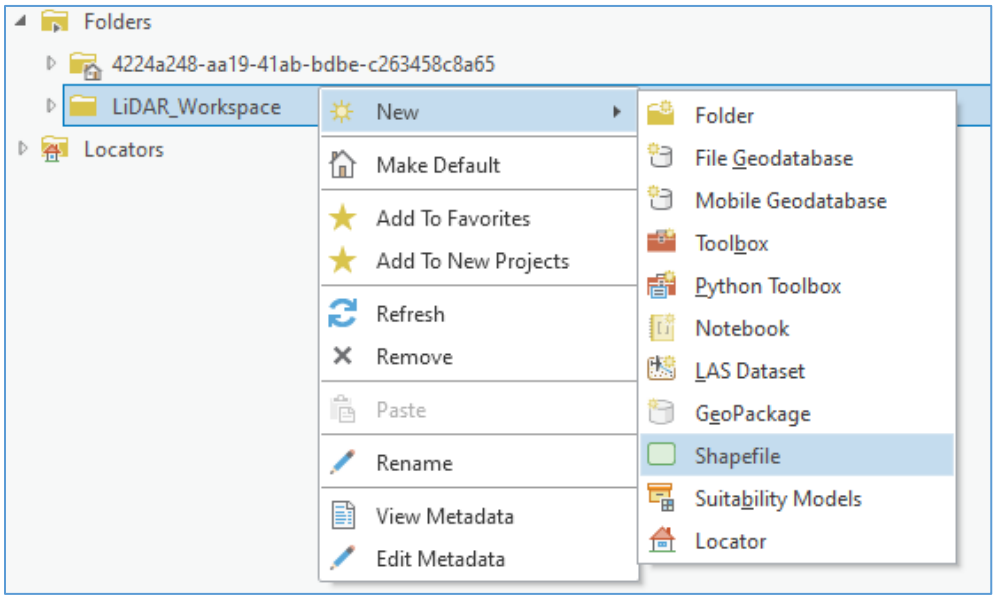
6. Right click the Folders section under the Catalog Pane and select Add Folder Connection:



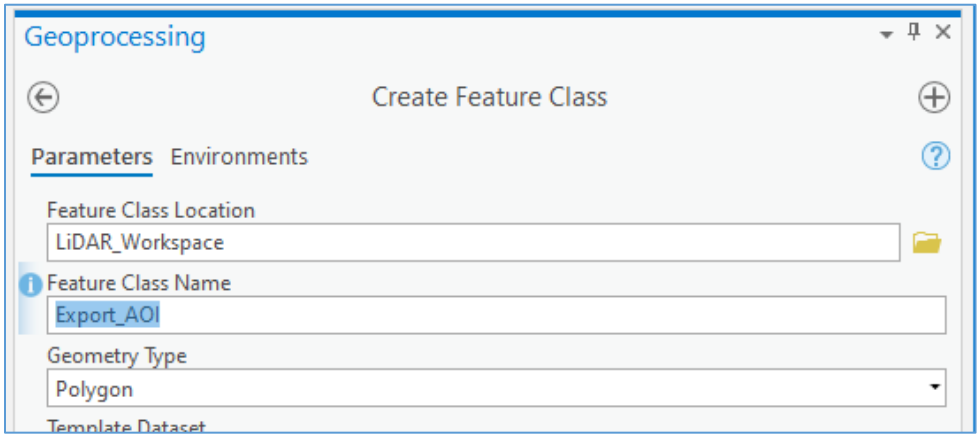
7. Navigate and connect the Catalog to your preferred workspace:



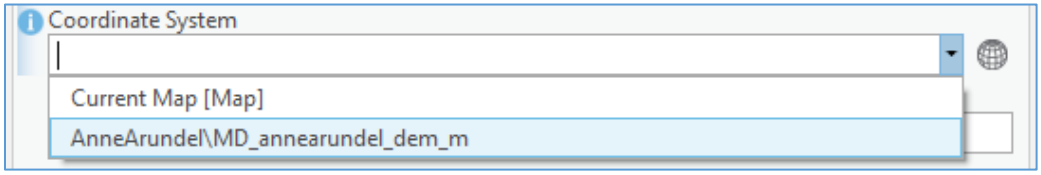
8. Right click the newly connected workspace, click New >> Shapefile
   This new shapefile will act as a simple export extent polygon:

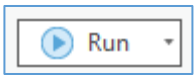


9. Name the new shapefile something appropriate. Example: ExportAOI
   Ensure the feature geometry type is Polygon



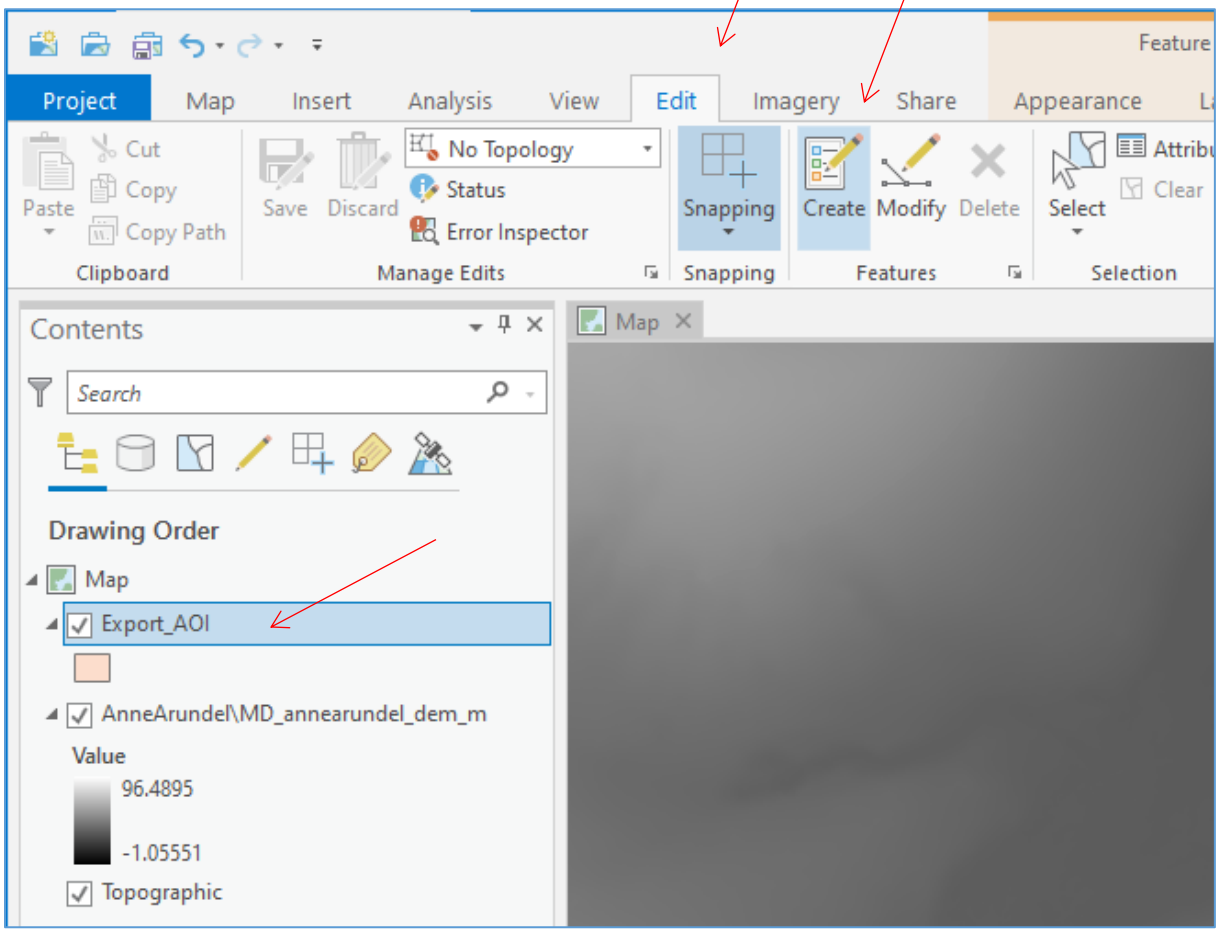
10. Select the Image Service from the Coordinate System dropdown to match the coordinate systems for the new shapefile:



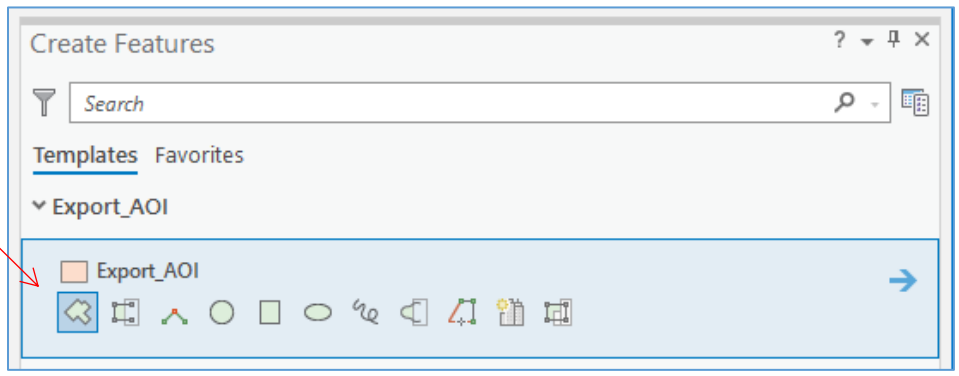
11. Click 

to execute the geoprocessing tool.

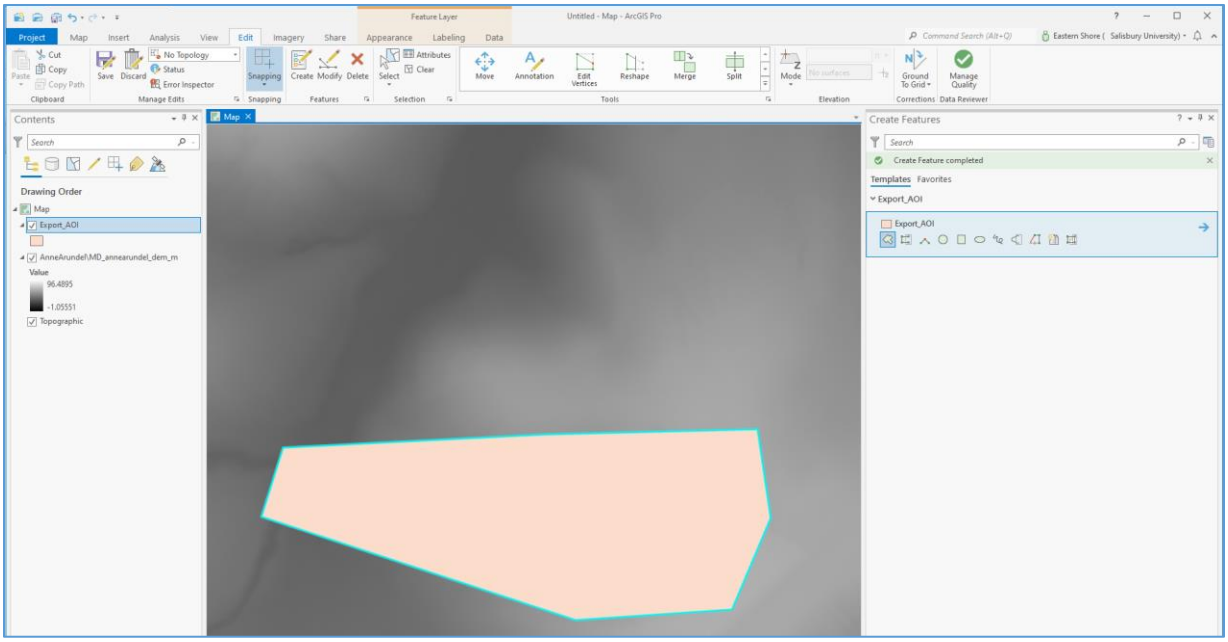
12. Single click the newly added layer in the Contents pane. Select the Edit tab on the menu bar and click Create



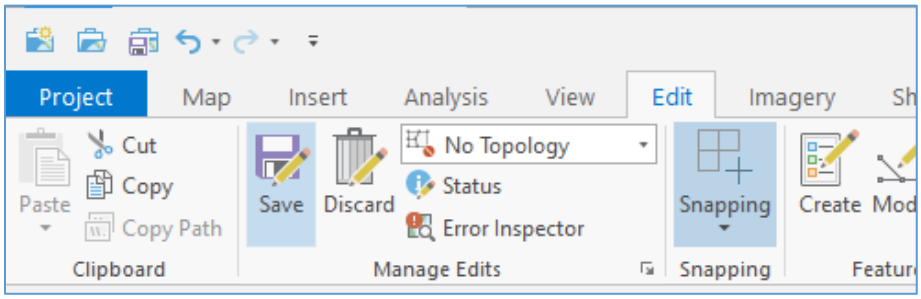
13. Under the Create Features pane, select the newly added polygon shapefile and the shape tool of choice:



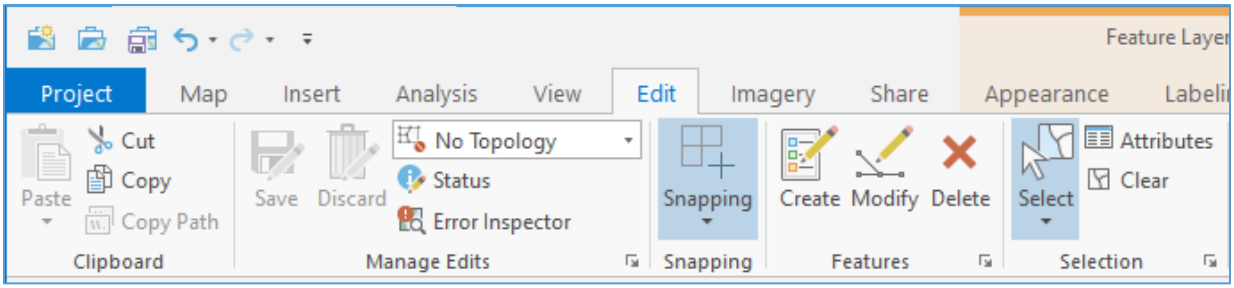
14. Single click on the map to start editing the polygon, each consecutive mouse click will create a new polygon vertex; double click to complete the polygon



15. Under the Edit menu bar, click Save to commit the edits to your shapefile:

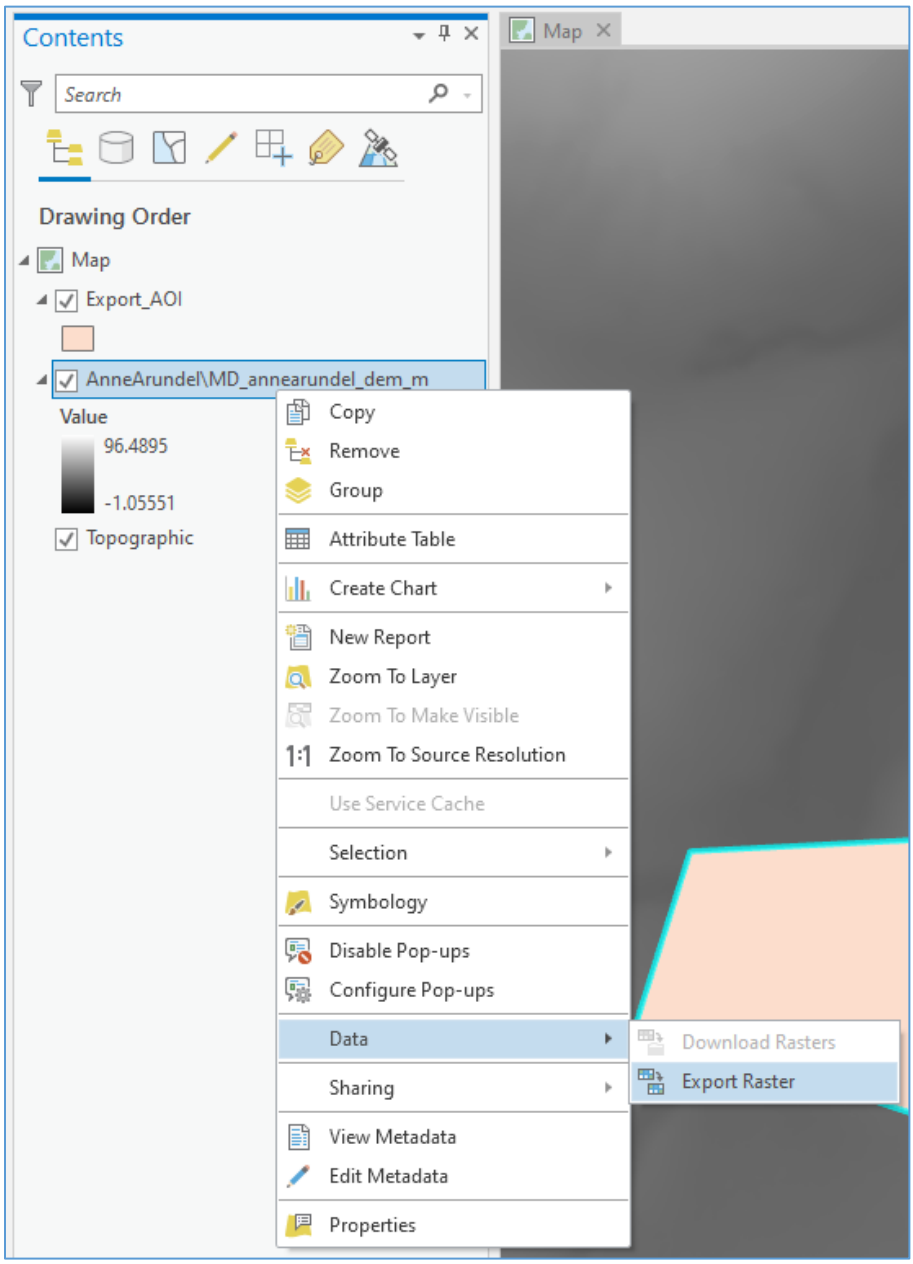


16. Under the Edit menu bar, click Select to select the desired feature for clipping:



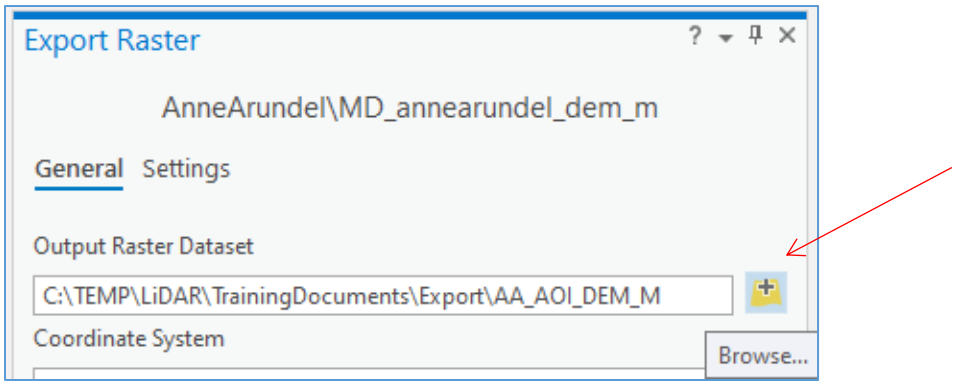
Single click the feature on the map to select it.

17. Right click the Image Service layer in the Contents pane and select Data >> Export Raster:



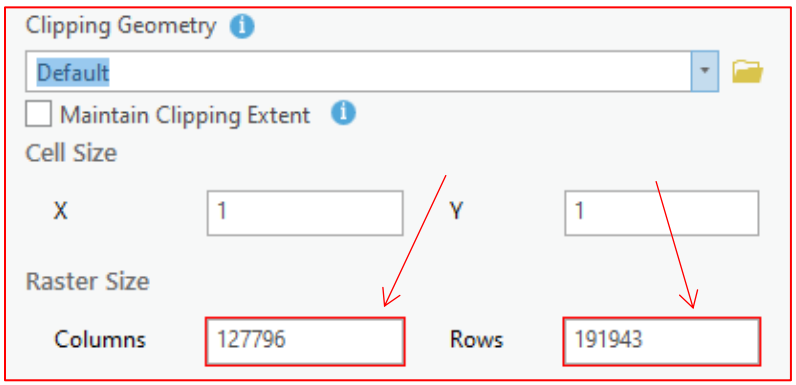
18. Click Browse  to navigate to your preferred output workspace and provide a name for the output raster

Note: If selecting an output file type of [GRID], your output file name must not exceed 13 characters and cannot start with a number.

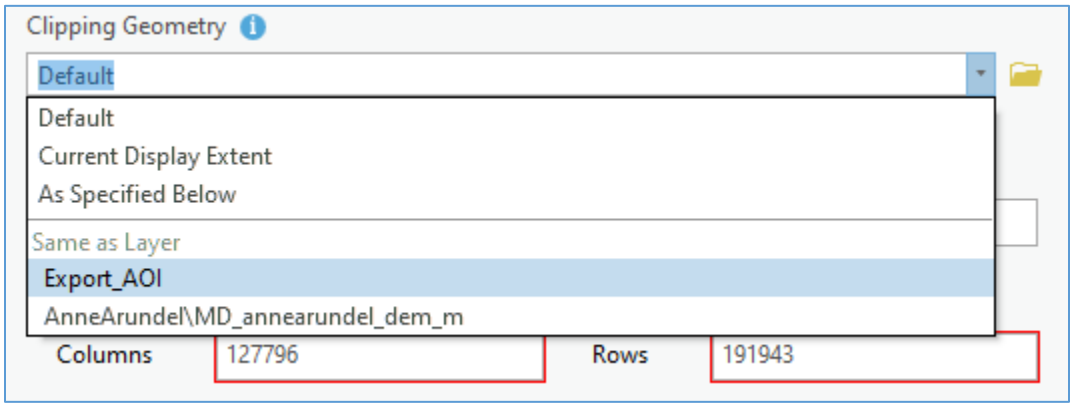


19. The default clipping geometry will specify the 4 corners of the bounding box for the raster object.

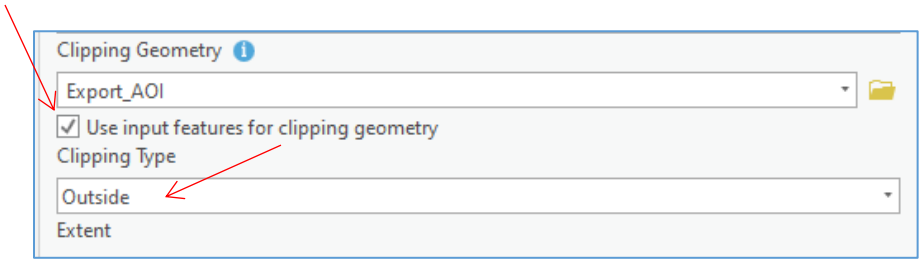
    Note: The default raster size is highlighted in red, indicating the extent exceeds our export limitation of 4100x15000



20. Set the Clipping Geometry to the polygon layer containing the selected feature:



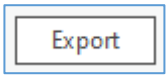
21. Check the box for Use input features for clipping geometry.
    To clip out the raster and only return cells within our selected feature, make sure the Clipping Type is set to Outside:

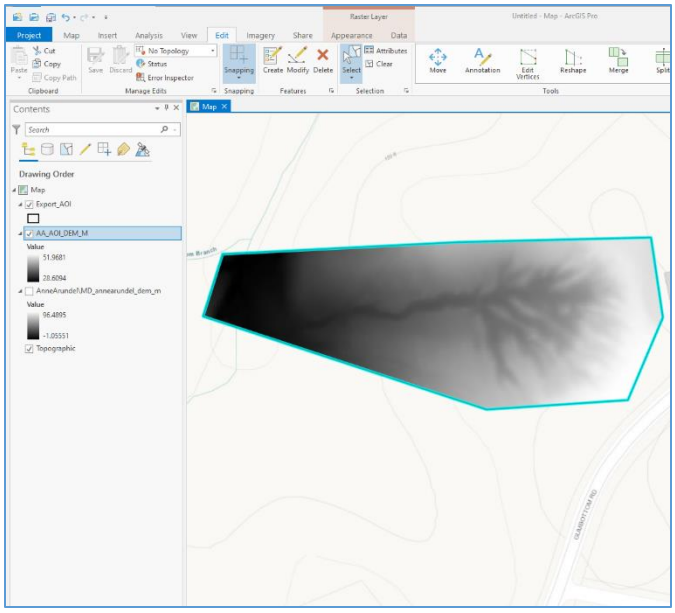


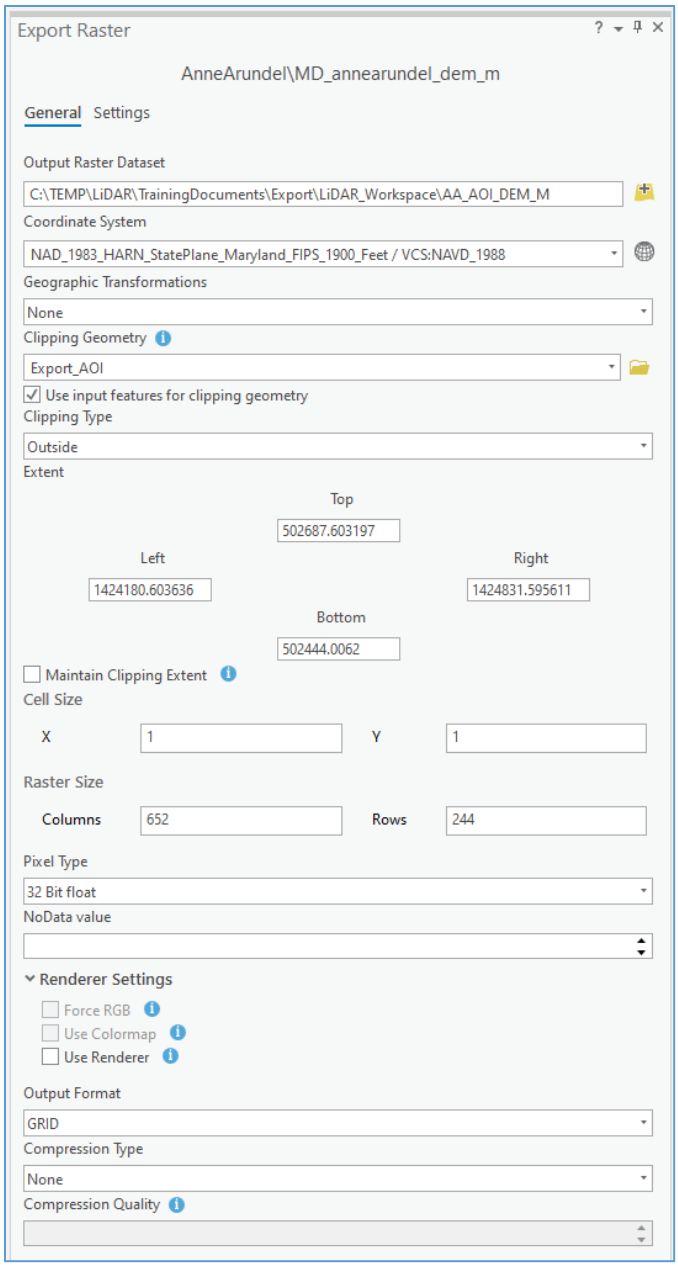
22. Leave the Coordinate System and Cell Size parameters as default (the export window will automatically populate the coordinate system and cell size of the export to match that of the original raster dataset).

    Select output format >> if continuing to work in ArcGIS Pro, GRID format (default) is recommended.

    The remaining export raster parameters may be left as the default setting.

    Click  to run the tool.



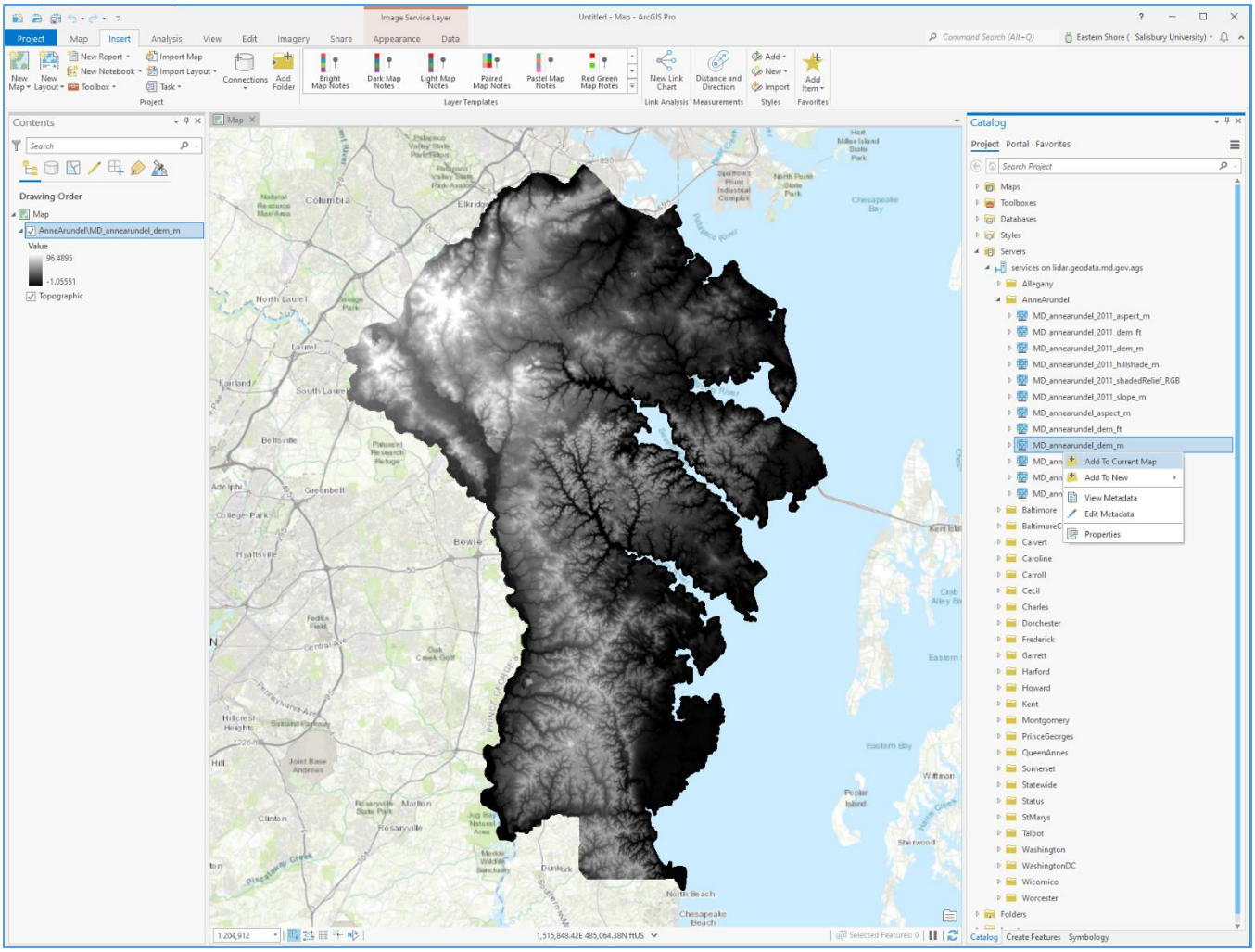


Extract by Mask – Spatial Analyst Extension is required for this method

1. Open an existing project, or start a new map template, in ArcGIS Pro.

2. Add the desired Image Service to your map.
   For more information on accessing Maryland LiDAR image services, please read How to Access Maryland LiDAR Image Services.

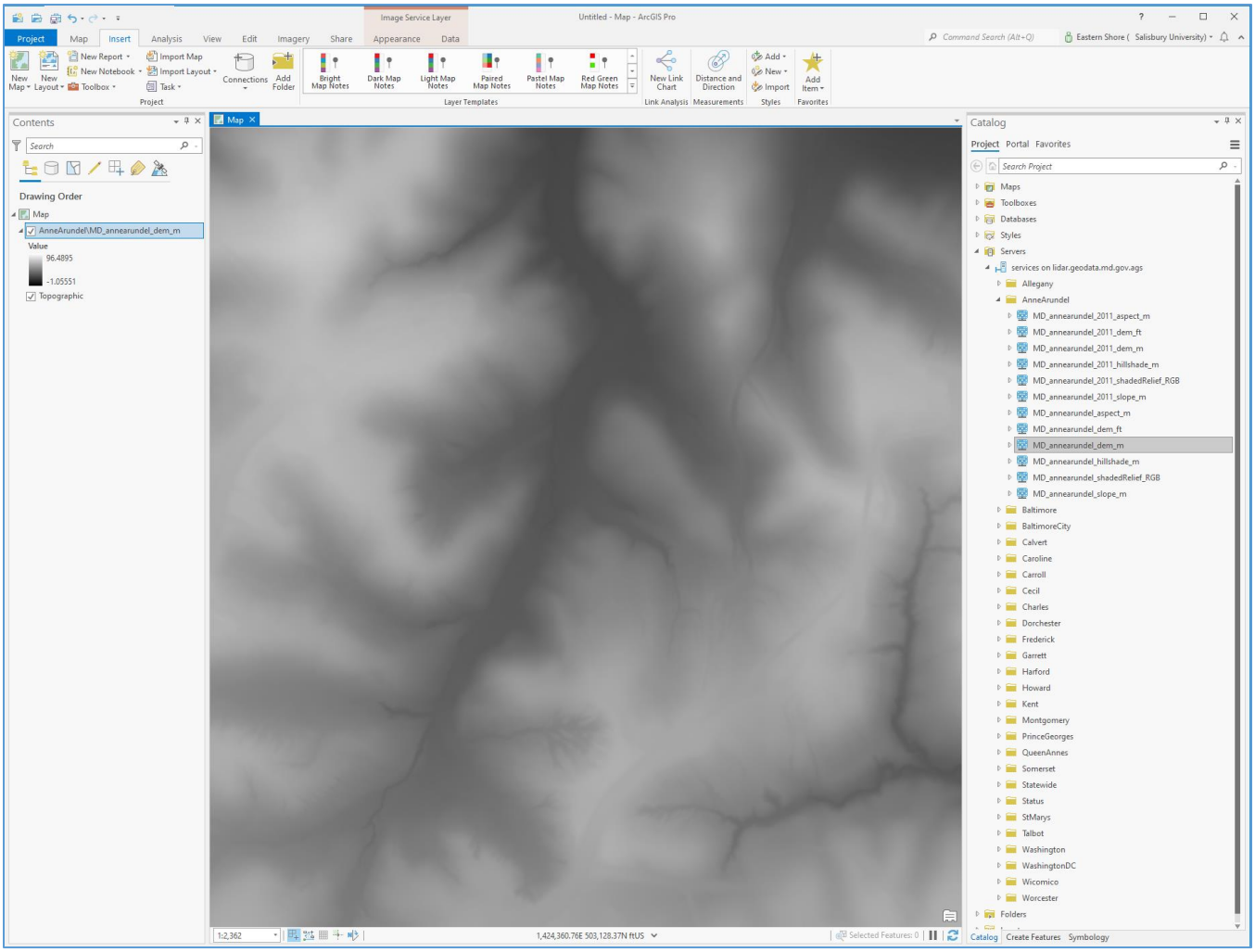
   Example: Anne Arundel DEM in Meters



3. Zoom to your area of interest.

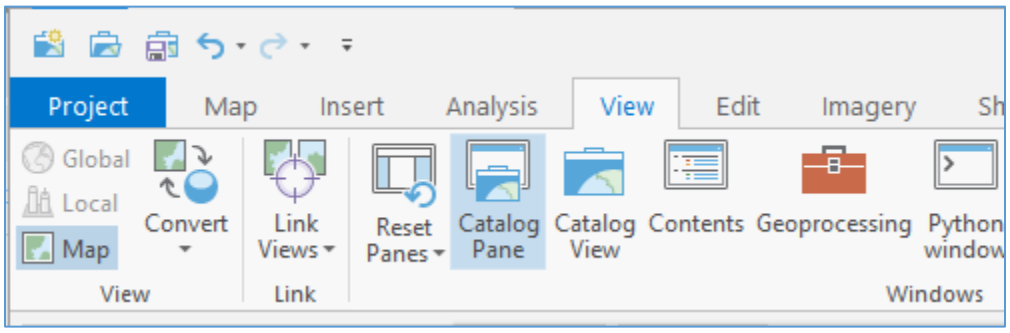
   Note: This export method uses a clipping geometry as specified by the current map frame extent. The image server defines an export limitation of 4,100 rows and 15,000 columns. Users should be safe to export at scales of 1:3000 or larger.

   For larger areas of interest, download a pre-defined countywide DEM from the [MD iMAP LiDAR Download page](#).

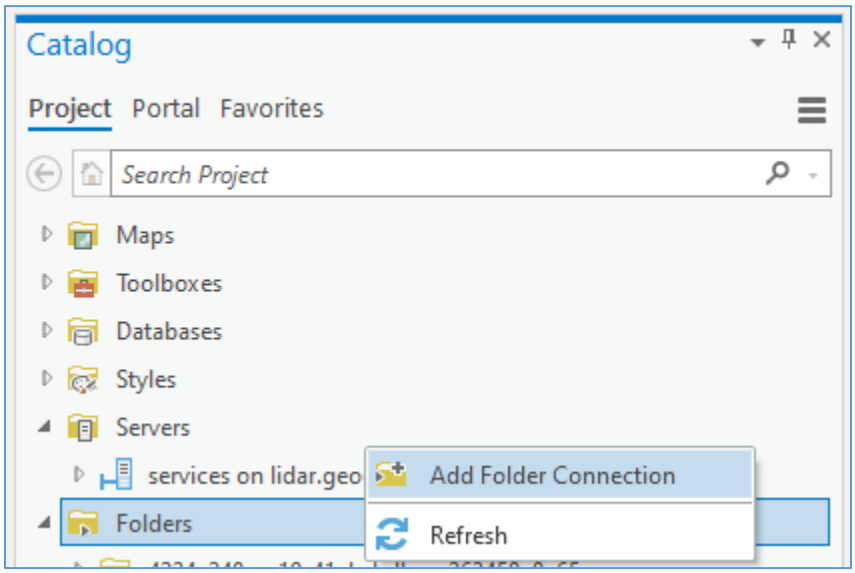


4. If you already have a feature class containing your area of interest and do not need to create your selected feature to extract by, skip to step 16

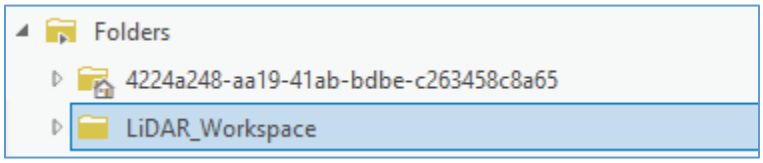
5. Select View tab on the menu bar and open Catalog Pane:



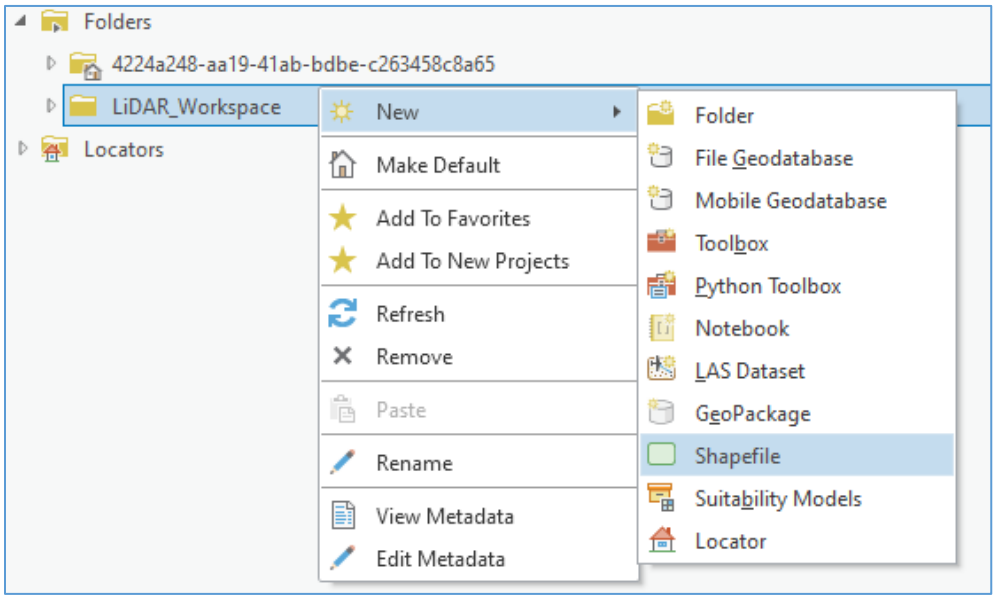
6. Right click the Folders section under the Catalog Pane and select Add Folder Connection:



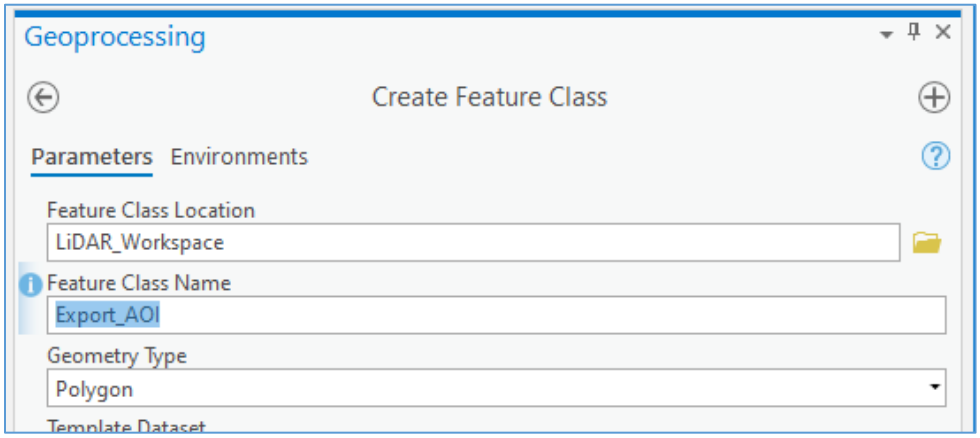
7. Navigate and connect the Catalog to your preferred workspace:



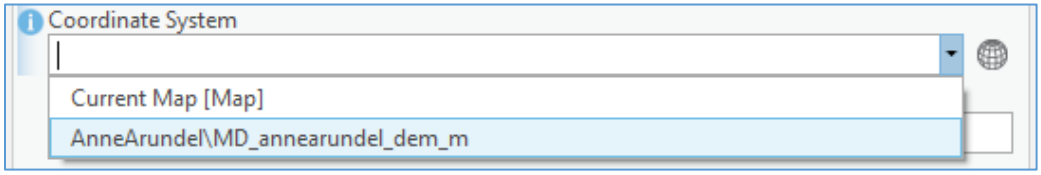
8. Right click the newly connected workspace, click New >> Shapefile
   This new shapefile will act as a simple export extent polygon:

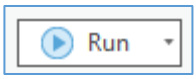


9. Name the new shapefile something appropriate. Example: ExportAOI
   Ensure the feature geometry type is Polygon



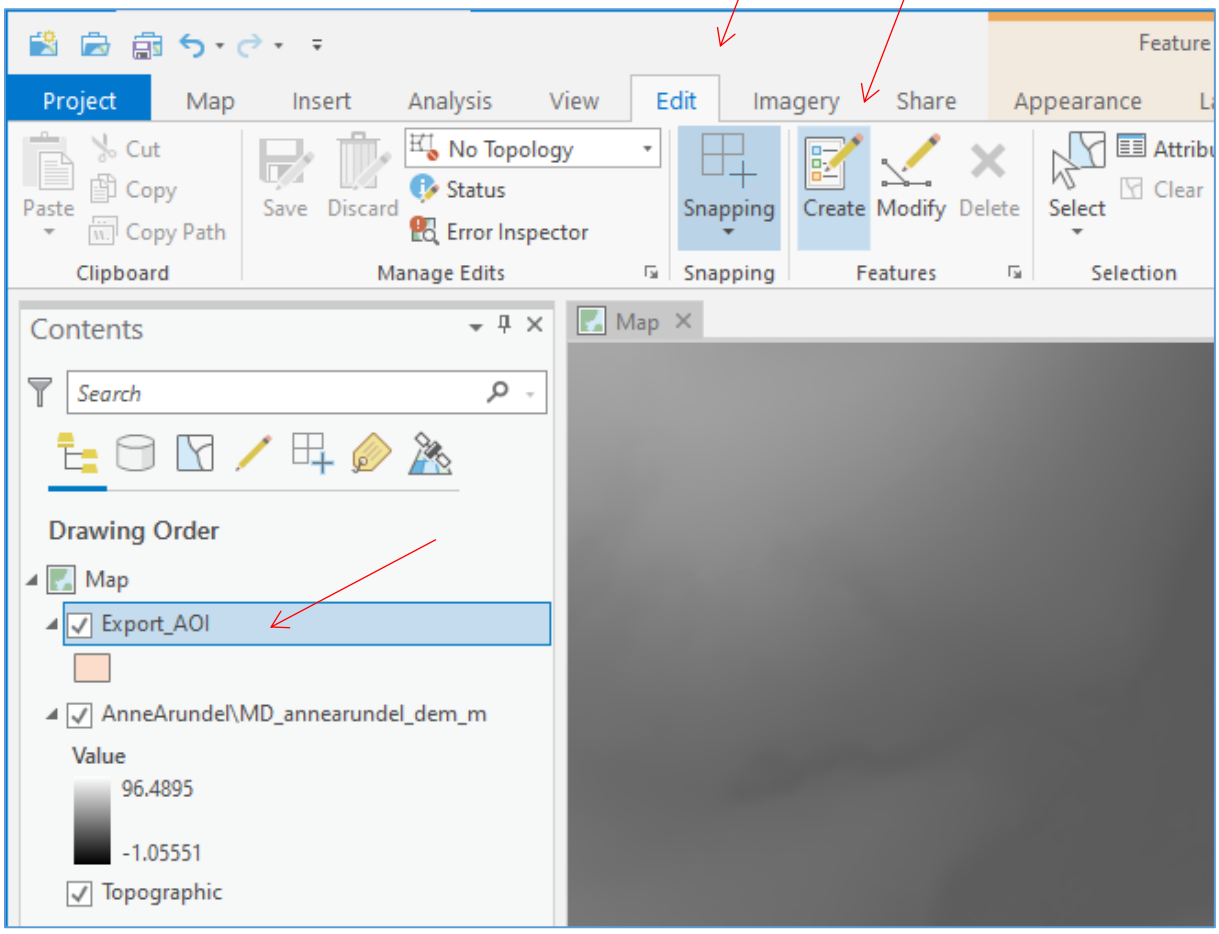
10. Select the Image Service from the Coordinate System dropdown to match the coordinate systems for the new shapefile:



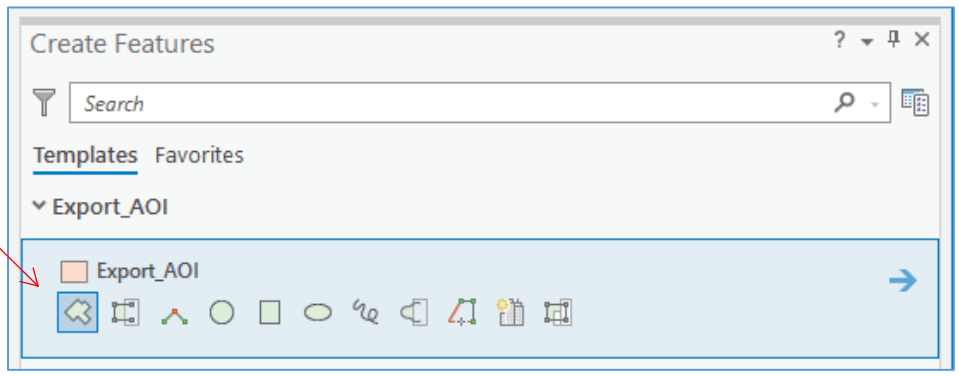
11. Click 

to execute the geoprocessing tool.

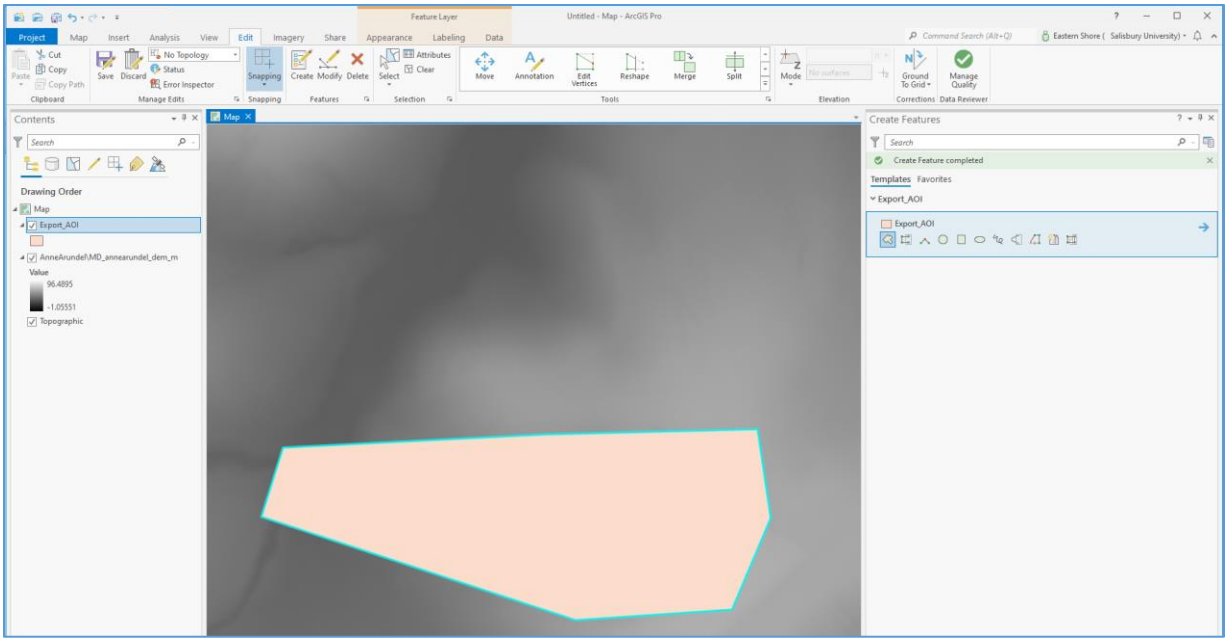
12. Single click the newly added layer in the Contents pane. Select the Edit tab on the menu bar and click Create



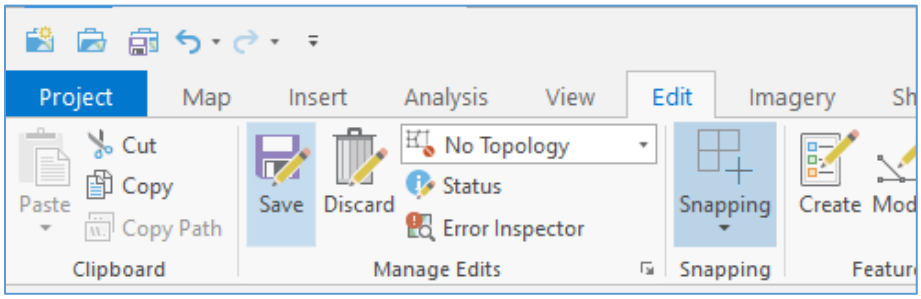
13. Under the Create Features pane, select the newly added polygon shapefile and the shape tool of choice:



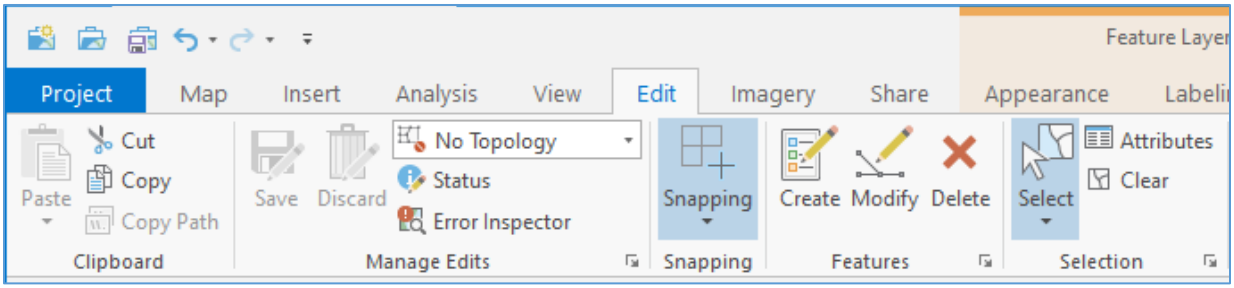
14. Single click on the map to start editing the polygon, each consecutive mouse click will create a new polygon vertex; double click to complete the polygon



15. Under the Edit menu bar, click Save to commit the edits to your shapefile:

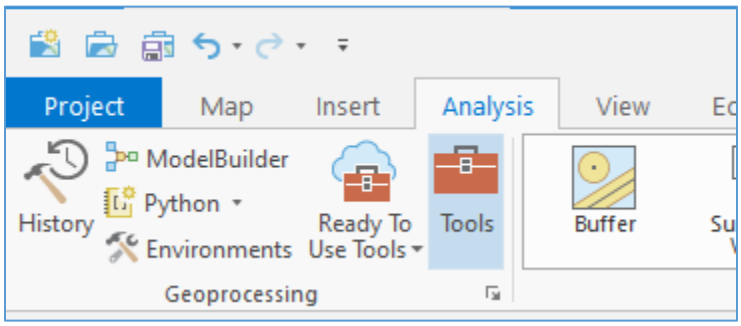


16. Under the Edit menu bar, click Select to select the desired feature for clipping:

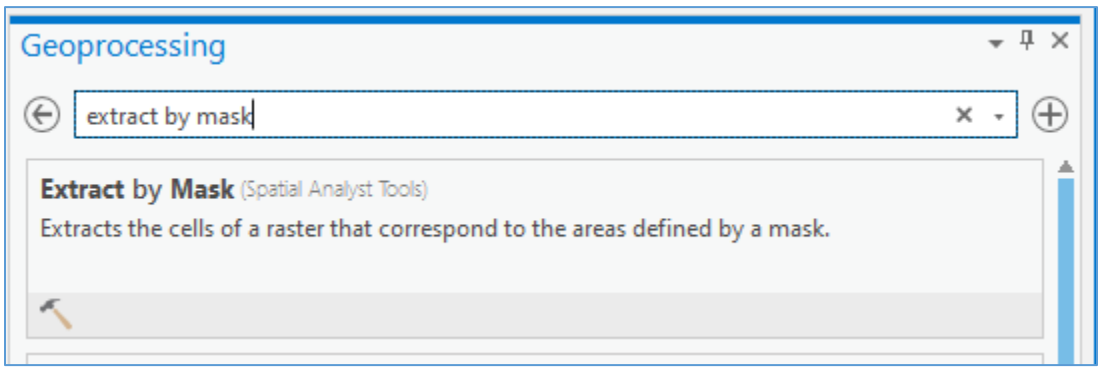


Single click the feature on the map to select it.

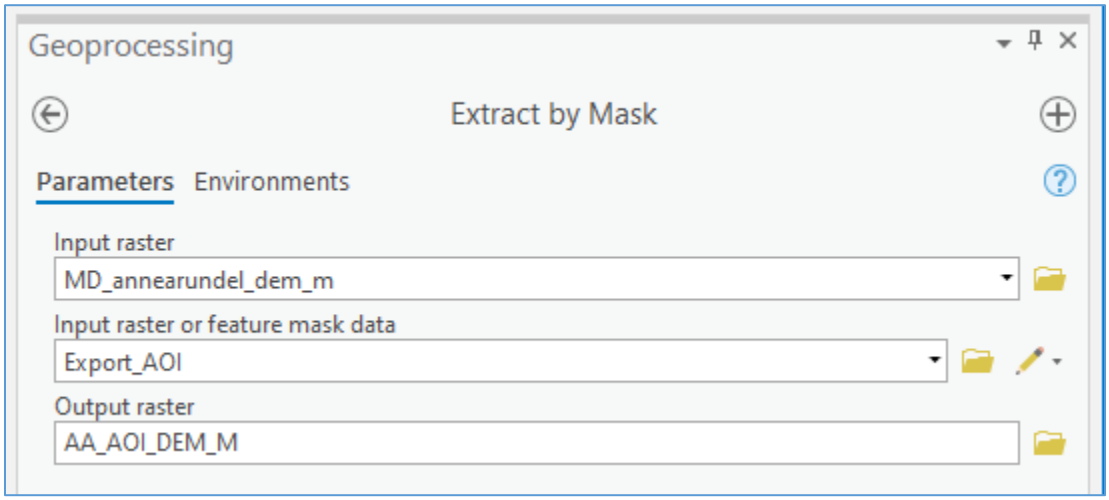
17. Under the Analysis menu bar, select Tools to open the Geoprocessing pane:

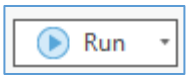


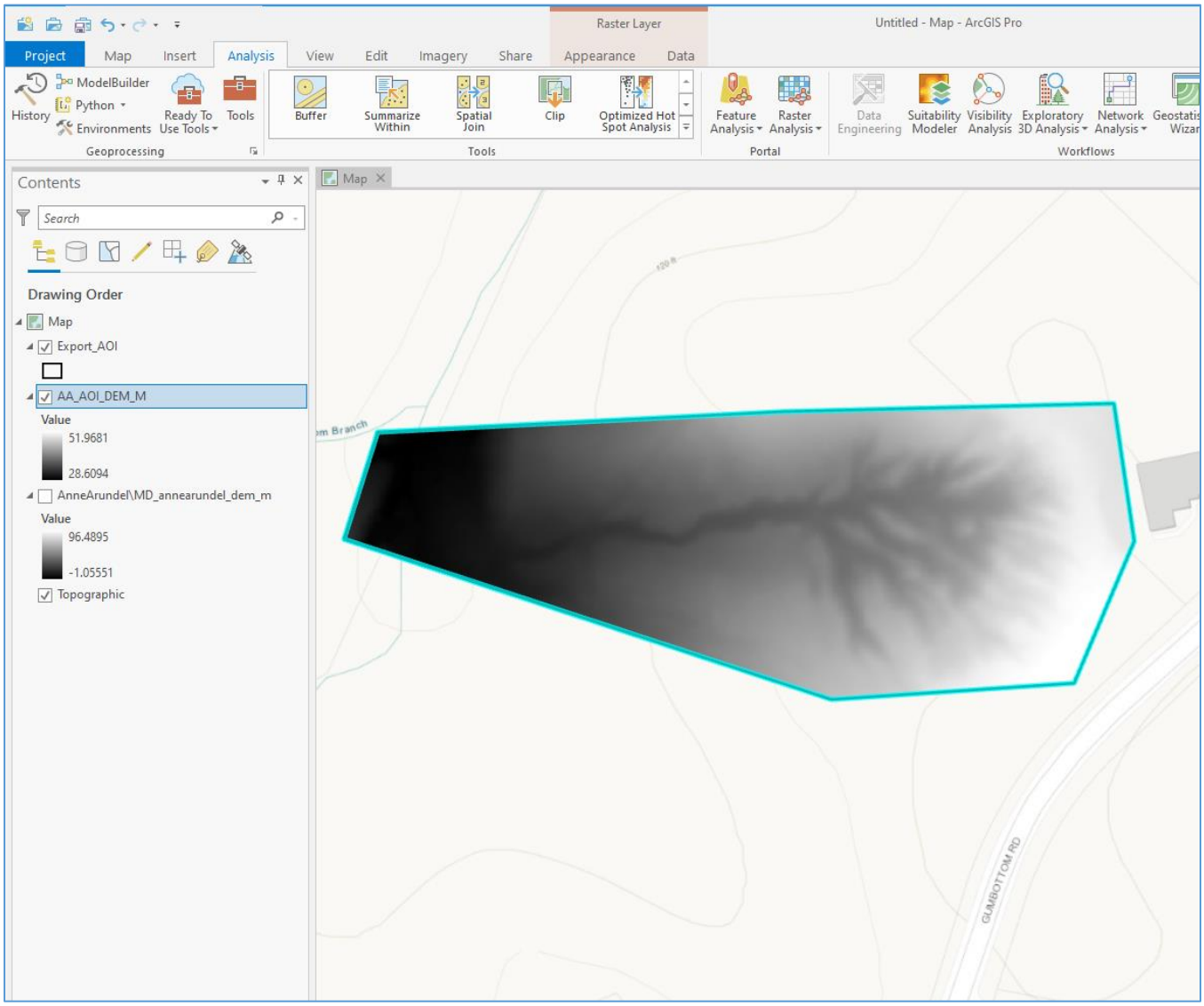
18. Search for Extract by Mask (Spatial Analyst Tools) under the Geoprocessing pane:



19. Set the input raster as the Image Service
    Set the input raster or feature mask data as the selected feature layer from your map
    Give your output raster an appropriate name in your preferred output workspace folder:



20. Click  to execute the geoprocessing tool:



ADDITIONAL RESOURCES

For more information about Maryland LiDAR, please visit the Maryland LiDAR Overview page

For more information about additional training opportunities, please visit the MD iMAP Training Overview page, or contact Lisa Lowe, Senior GIS Analyst with the Maryland Department of Information Technology, Geographic Information Office at lisa.lowe@maryland.gov.

For additional MD iMAP datasets, please visit the GIS Data Catalog

For all other inquiries related to Maryland LiDAR, please contact the GIO Office at service.desk@maryland.gov.